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AUTHOR	Izat, James G.; McKinzie, LeAnn; Mize, Charles D.; McCallie, Trey
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ABSTRACT

This research, performed during 1998 and 1999, had as its purpose the development and validation of a course/instructor evaluation instrument specifically for use with graduate and undergraduate courses delivered online via the World Wide Web. The primary goal of the study was to develop an instrument that would collect valid perception data from students at West Texas A&M University concerning technology of delivery, course content, and instructor-related aspects of courseware delivered via the Internet. To this end, an instrument was developed using the input of two panels of university faculty, administrators, and staff and repeated pilot studies to collect data on the validity and reliability of the instrument. Feedback received from the expert panels, short- and long-term pilot studies, and analysis of the collected data provided preliminary evidence to support the validity and reliability of this Internet delivered course-specific evaluation instrument. (Contains 13 references.) (Author/MES)

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Evaluation of World Wide Web Delivered University Courseware: Creating an Instrument Appropriate for a New Course Delivery Medium

James G. Izat
Instructional Technology
West Texas A&M University
United States
jizat@mail.wtamu.edu

LeAnn McKinzie
Associate Dean – Information Technology
West Texas A&M University
United States
lmckinzie@mail.wtamu.edu

Charles D. Mize
Instructional Technology
West Texas A&M University
United States
cmize@mail.wtamu.edu

Trey McCallie
Online University
West Texas A&M University
United States
tmccallie@mail.wtamu.edu

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G.H. Marks

Abstract: Research was performed during the 1998 and 1999 calendar years that had as its purpose the development and validation of a course/instructor evaluation instrument specifically for use with graduate and undergraduate courses delivered online via the World Wide Web. The primary goal of the study was to develop an instrument that would collect valid perception data from students at West Texas A&M University concerning technology of delivery, course content, and instructor related aspects of courseware delivered via the Internet. To this end an instrument was developed using the input of two panels of university faculty, administrators, and staff, and repeated pilot studies to collect data on the validity and reliability of the instrument. Feedback received from the expert panels, short and long-term pilot studies, and analysis of the collected data provide preliminary evidence to support the validity and reliability of this Internet delivered course-specific evaluation instrument.

Introduction

As the increased use of instructional technology in teaching becomes ever more necessary in higher education, the use of computer technologies to deliver course content to students constitutes the new frontier. Because the possession of a university degree in the latter part of the twentieth century has become more and more essential to career success, access to a university education for all that desire it has become a priority for universities large and small. One method of providing such access to students who have not previously had the opportunity to attend a university is to deliver course work to the student through the use

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of newly available Internet based technologies. The delivery of courses in post-secondary education via technological means, while not new, has gained greater impetus through the expanded use of Internet technologies that center on the World Wide Web. Through the use of the World Wide Web, undergraduate and graduate courses can be delivered without any limits as to the geographical location of the student. Johnstone (1997) has found that students who elect to take courses via technological means have an expectation of convenience and ease of access. This desire on the part of traditional and non-traditional students for higher education delivered to them on their own schedule has driven the strong growth in both institutions of higher education offering such electronically delivered courseware, and the range of courses offered. Twigg (1994) finds that non-traditional students in particular define their role as a participant in higher education differently than their younger counterparts. Older students tend to view themselves as discriminating consumers of an educational product. Because of this view these students do not view themselves as limited to what professors and administrators of higher education think they need.

In addition to the differing perceptions and expectations of students for on-line delivered courseware, the medium of delivery also plays a role in shaping how students' perceive their experience as a student in this new type of learning experience. While several authors (Tait 1993; Dringus 1995; Cresswell & Hobson 1996; Johnstone 1997; and Magalhaes & Schiel 1997) have addressed the need for high quality evaluation of courses delivered at a distance, there is currently a dearth of research studies published that offer validated evaluation survey instruments specifically written for World Wide Web delivered courseware. It is the above listed differences in perceptions by potential consumers of distance delivered courseware that makes valid evaluation of student perceptions and experiences in these courses essential to university administration and faculty.

This study took place during 1998-1999 academic years at West Texas A&M University in Canyon, Texas. West Texas A&M University is a member of Texas A&M University System that serves the panhandle region of Texas. This region of the state of Texas has an approximate population of 700,000, with the university having an approximate enrollment of 6,800 students. In the fall semester of 1997, West Texas A&M University implemented four courses for online delivery through the World Wide Web with a total enrollment of approximately 125 students. Currently (fall semester 1999) 33 different courses are offered with a total enrollment of approximately 660 students in initial enrollment. West Texas A&M University currently plans to make available 25% of its course offerings via World Wide Web delivery by the year 2003.

Of the many challenges faced by universities and instructors who develop and offer online courseware, course evaluation may be among the most difficult challenges to address. In this study, a new instrument was developed to collect course evaluation data for courses that are delivered online through the World Wide Web. The first phase of the development process involved the associate Dean of Information Technology, research specialists, and faculty who have designed and facilitated online courseware. The new instrument developed as a result of this process was designed to collect data concerning student perceptions of course content, instruction, and delivery. The second phase of the project involved analysis of the data gathered from participants in the study to determine internal reliability and the benefits and limitations of using the Internet to conduct online course evaluations.

During the first three semesters that courses were offered online at West Texas A&M University, no course evaluation instruments were distributed for the collection of student perceptions as to course and instructor. The university had used (and still uses) a Course/Instructor Evaluation Questionnaire (CEIQ) instrument which was an adaptation of the Aleamoni Course/Instructor Evaluation Questionnaire (Aleamoni 1978). This instrument had been used to gather student perceptions as to course and instructor for some ten years prior to the offering of online courses at WTAMU, but had not yet been applied to online courses due to the early stage of development and implementation of this new instructional medium.

Much research has been written on the validity and reliability of using standard survey questionnaires to assess student perceptions of instruction and course content quality (Costin, Greenough, & Menges 1971; Centra 1973; Cashin 1988, 1990, 1995; Abrami, D'Apollonia, & Cohen 1990). However there is very much less literature that deals specifically with either the development or validation of online course-specific student evaluation instruments. The research team began their investigation with an Internet search for

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instruments currently used to evaluate online courseware. This search conducted in January 1999 found less than 5 such instruments that were accessible. The majority of the instruments located and evaluated were structured using the familiar Likert type questions that sought to quantify student perceptions of perceived course and instructor quality. A similar search conducted in late November 1999, found a much larger number of such evaluative instruments available for study, although their quality ranged from comprehensive to perfunctory. Due to the lack of existing instrumentation available for adaptation at the beginning of the study, it was determined that the development of a new instrument would be necessary.

This newly developed instrument must be valid and reliable, and the data collected through the use of this instrument should be able provide data that will be valuable for formative and summative evaluation of courseware. It is essential that instructors whose online teaching effectiveness is being evaluated through such an instrument have confidence in the fact that the instrument being used to evaluate their teaching can actually gather data that is validly measuring their level of success with students in this new teaching medium. If instruments used in the evaluation of online delivered courses have previously been validated only for use in the traditional classroom, confidence can be diminished in the feedback generated by those evaluations by online faculty.

Method

As World Wide Web courses became more widely implemented and include the participation of more faculty members at West Texas A&M University, concerns were raised by the faculty teaching online courses as to whether the evaluation of courses delivered via the World Wide Web would be comparable to the evaluation of courses delivered in the more traditional manner. Due to the dearth of World Wide Web course delivery evaluation instrumentation in the literature, the need for a delivery method specific course and instructor evaluation instrument became clear to both those who administrate and those who taught online courses at West Texas A&M University. The first goal in developing such an instrument was to provide for a comprehensive validation strategy through which the validity of the instrument could be quantified procedurally and later statistically.

This study was pursued in two main phases. In the first phase, a panel of web courseware development faculty, administrators, and staff were gathered at West Texas A&M University in the fall semester of 1998 for the purpose of developing a course evaluation instrument. The expert panel assembled consisted of LeAnn McKinzie, Associate Dean for Information Technology, James Izat, assistant professor of instructional technology and research, Charles Mize, program head of instructional technology, and Trey McCallie, instructional technology graduate student and WTOnline university network programmer. This panel met to decide on the initial form of the instrument and questioning domains to be used in gathering data. Three main questioning domains were chosen; they included questions designed to elicit perceptions as to delivery technology, course content, and instructor. The questions in the delivery technology domain sought information from students as to how they perceived the role of the Internet-based technologies used to deliver online courseware in their overall course experience. The course content domain questions were written to collect data on students' perception of the quality, structure and value of the course content as they experienced it through the online course presentation. Lastly, the instructor evaluation domain sought to determine how students viewed the contributions, expertise, and responsiveness of the instructor. Incorporated into the first draft were instructor and course content questions that were reflective of the five main questioning domains of the CIEQ (Aleamoni, 1978) instrument used to evaluate classroom-based courses (course value, method of instruction, instructor attributes, course material, and student interest). The second phase of the study began with the completion of the first draft of the online courseware evaluation instrument. This instrument was distributed among several instructors of courses that were offered through World Wide Web delivery for comment. These comments were evaluated and, when appropriate, incorporated into the instrument. The draft instrument was then distributed to a class of graduate students at West Texas A&M University. The students participating in this pilot study were asked to complete the survey instrument and check for proper wording, phrasing, and time of completion.

This second draft of the instrument was then rewritten as a World Wide Web based point and click form and posted on the university server which hosts online courseware. Instructors of online courses were requested to encourage their students to participate in the study by evaluating the courses in which they

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were currently enrolled using this instrument. Additionally, all students currently enrolled in World Wide Web based courses were notified by email of the existence of the instrument and were asked to use the instrument to evaluate the course or courses they were currently taking. A point and click World Wide Web address was included in the email sent to all students enrolled in online courses to enable the students to easy locate the web site where the instrument was posted.

Data gathered from the spring 1999 semester field study was used to refine and further focus the instrument used for distribution to summer online courses. Similarly data gathered from two summer session distributions was used to further refine the instrument distributed in the fall semester of 1999. Data collected in each of the three field trials of the instrument have been analyzed to characterize the perceptions of study participants of their online course experiences. Also gathered data was used to discover the strengths and weaknesses of the online evaluation instrument, and the use of the Internet to evaluate student course perceptions. At the time of the writing of this paper data has been gathered from the fourth distribution of the instrument. The accumulated data will be used to perform a factor analysis of the questions used to quantify the validity of the instrument.

Findings

The process through which the instrument was developed progressed through two expert panels (research and development, and online teaching faculty), and both a small and a large-scale pilot study. When the data from the first three distributions (Spring, Summer I, and Summer II semesters of 1999) of the instrument were analyzed to determine a reliability coefficient for the questions used to gather data from the three questioning domains, a standardized item alpha coefficient of .7784 was obtained.

Data collected through the summer semester included 204 usable responses reflecting a total response rate of approximately 30% of students who were requested to participate in the study. At the writing of this article approximately 185 further responses have been gathered from students enrolled in fall semester 1999 courses, a response rate of approximately 35%. Of those students responding, approximately 28% were male, and 72% were female. Students responding to the survey were from a range of ages, including 38% from 23-30 years of age, 27% from 31-40 years of age, and 18% from 41-50 years of age. The remaining 17% of respondents were either under the age of 22 (14%) or over the age of 50 (3%). This result is affected by the fact that West Texas A&M University has a strong population of non-traditional students, and that graduate courses were predominant (graduate 64%, undergraduate 34% in respondents) in the online offerings of the university in the early stages of its development. The majority (53%) of students responding to the survey instrument reported having taken no online courses previous to the course they were evaluating, while an additional 31% of respondents reported having taken either one or two classes previously. Respondents to the study reported confidence in their mastery of course material taught as is evidenced by the fact that 71% reported that they expected a grade of "A", while 27% expected a "B." Only 2.5% reported an expectation of a grade less than "B." When respondents were asked how long they spent completing the survey, 96% of respondents reported that it took 15 minutes or less, while 74% reported taking 10 minutes or less.

Although text boxes were provided for respondents to comment upon the instrument itself, there were no comments or suggestions submitted. Similarly there were no comments added by respondents concerning questions that should be added or deleted. Respondents did, however, use the text boxes provided to comment on their instructor and/or their course.

Conclusions

Many lessons were learned by those researchers who worked together on this project during the 1998-1999 study period. Chief among these lessons is the finding that the traditional method of inviting participation in a study that is facilitated through technological means (i.e. the submission of a world wide web point and click form after notification by email) has not resulted in the rate of return desired by the researchers. While this low rate of return is not as significant an issue during the pilot testing phase of a validation study as it would be when the instrument, the researchers has hoped for a higher rate of return overall. In the

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traditional classroom setting achieving a high rate of return on such an evaluative instrument is relatively straightforward, collecting such data through the internet has the potential to be somewhat more challenging. The maximization of student participation in online course evaluation will depend upon the implementation of new technologically enhanced methods developed and used to compel students to participate in an online-based course evaluation regardless of type. The use of such methods will allow the return rate of online course evaluations to approach or even exceed the return rate of evaluative instruments administered in the classroom.

A second lesson learned was that in any process which has as its goal the development of an instrument for the purpose of evaluating instruction there is a need for involvement of all effected groups in the development process. Those researchers who wish to develop such an online course specific evaluative instrument would be well served to involve the faculty, both those teaching on-line and those not, in the development process. Those faculty members who are teaching online will most probably be doing so without great experience in using Internet and World Wide Web technologies and media, and will view some trepidation evaluative methods that will affect their overall teaching effectiveness ratings.

References

Abrami, P., d'Appolonia, S., & Cohen, P. (1990). Validity of student ratings of instruction: What we know, what we do not. *Journal of Educational Psychology 82*, 219-231.

Aleamoni, L. (1978). *Arizona course/instructor evaluation questionnaire (CIEQ). Results interpretation manual. Form 76.* Tucson: University of Arizona, Office of Instructional Research and Development.

Cashin, W. (1988). *Student ratings of teaching: A summary of the research. Idea Paper no. 20.* Manhattan: Kansas State University, Center for Faculty Evaluation and Development.

Cashin, W. (1990). *Student ratings of teaching: Recommendations for use. Idea Paper no. 22.* Manhattan: Kansas State University, Center for Faculty Evaluation and Development.

Cashin, W. (1995). *Student ratings of teaching: The research revisited. Idea Paper no. 32.* Manhattan: Kansas State University, Center for Faculty Evaluation and Development.

Centra, J. (1973). Effectiveness of student feedback in modifying college instruction. *Journal of Educational Psychology, 65,* 395-401.

Costin, F., Greenough, W., & Menges, R. (1971). Student ratings of college teaching: Reliability, validity, and usefulness. *Review of Educational Research, 41,* 511-535.

Cresswell, R., & Hobson, P. (1996). Fallacies and assumptions in the use of student evaluation of distance education teaching materials. *Distance Education, 17* (1), 132-144.

Dringus, L. (1995). An iterative usability evaluation procedure for interactive online courses. *Journal of Interactive Instruction Development, 7* (4), 10-14.

Johnstone, S. (1997). Quality control in electronic delivery of higher education. *Journal of Public Service and outreach, 2* (3), 12-17.

Magalhaes, G., & Schiel, D. (1997). A method for evaluation of a course delivered via the World Wide Web in Brazil. *The American Journal of Distance Education, 11* (2) 64-70.

Tait, A. (1993). Systems, values and dissent: Quality assurance for open and distance learning. *Distance Education, 14,* 303-314.

Twigg, C. (1994). The changing definition of learning. *Educom Review, 29* (4), 23-25.

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